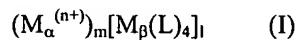


AMENDMENTS TO THE CLAIMS

1-9 cancelled

10.(New) A process for preparing lactones by catalytic carbonylation of oxiranes using a catalyst system comprising

a) at least one carbonylation catalyst A comprising uncharged or anionic transition metal complexes of the formula (I)



where

M_{β} Re, Co, Ru, Rh, Fe, Ni, Mn, Mo, W or mixtures thereof with the formal charge -1,

L is PR_3 , $P(OR)_3$, NR_3 , SR_2 , OR_2 , CO , $R-CN$, $R-NO_2$, $(RO)(R'O)C=O$, $(R)(R')C=O$, $(R)C=O(OR')$,

M_{α} is a metal of group 1 or 2 of the Periodic Table of the Elements, Zn or Hg, bis(triarylphosphine)iminium, trityl or $T(R)_4$ where

T is N, P or As,

R and R' are each, independently of one another, H, alkyl, aryl, alkaryl or aralkyl,

n and m are each 1 or 2 and

l is $n \times m$ and

b) at least one chiral Lewis acid B of the formula



where

M = Mg, Ca, Sc, Y, rare earth element, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Al, Ga, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Ti, Pb, which are present in coordinatively unsaturated form under the reaction conditions,

X = halide, sulfate, sulfite, nitrate, nitrite, carboxylate, sulfide, phosphate, sulfonate, borate,

L(n) = phosphine, cyclopentadienyl or ansa-ligands, salen, imines, oxazoline, alkoxide, phenoxide, carboxylate, where various L can also be joined to one another and L is chiral,

with the exception of $[(\text{salph})\text{Al}(\text{THF})_2][\text{Co}(\text{CO})_4]$, as catalyst, wherein the lactones are mixtures of S- and R-lactones having an excess of one enantionmer.

11. (New) A process as claimed in claim 10, wherein the ligands in the carbonylation catalyst A are uncharged ligands.
12. (New) A process as claimed in claim 10, wherein Co is present as transition metal in the carbonylation catalyst A.
13. (New) A catalyst as defined in claim 10 with the exception of $[(\text{salph})\text{Al}(\text{THF})_2][\text{Co}(\text{CO})_4]$.
14. (New) A process for preparing catalysts as defined in claim 13 by mixing the components A and B.
15. (New) A process as claimed in claim 10, wherein M_α is lithium, sodium, potassium or cesium.

16. (New) A process as claimed in claim 10, wherein said anionic transitional metal complex is tetraphenylphosphonium tetracarbonylcobaltate, tetraphenylarsenium tetracarbonylcobaltate, tetraphenylammonium tetracarbonylcobaltate, tetraethylphosphonium tetracarbonylcobaltate, tetraethylarsenium tetracarbonylcobaltate and tetraethylammonium tetracarbonylcobaltate or sodium tetracarbonylcobaltate.